PS108.

Recent Trends in the Publications of the U. S. Vascular Surgery Program Directors

Anil Hingorani, Enrico Ascher, Natalie Marks, Alexsander Shiferson, Kapil Gopal, Daniel Jung, Theresa Jacob. Division of Vascular Services, Maimonides Medical Center, Brooklyn, NY

Objectives: In an attempt to correlate the academic activity of vascular programs in the face of the recent economic downturn, we surveyed the U. S. vascular surgery program directors in terms of vascular publications listed in PubMed from January 2001 to December 2009. The interval between 2001-2006 was compared to the last 3 years.

Methods: 3284 citations published during this time period were examined. These citations were classified as follows: abdominal arterial-endovascular (506), abdominal arterial-open (125), lower extremity-endovascular (153), lower extremity-open (204), basic science (482), education (77), vascular medicine (243), imaging (250), upper extremity-endovascular (14), upper extremity-open (46), thoracic aorta-endovascular (148), thoracic aorta-open (98), carotid artery angioplasty (136), carotid artery-open (178), amputation (18), reply or commentary (60), book review (6), venous-endovascular (93), venous-open (30), guidelines (81), other (8), case report (s) (295), and trauma (50). J VS publication made up 37% of the citations.

Results: Compared to the first 6 years, the number of citations has decreased during the last 3 years (13%). During the 1st period, there were no programs with no publications and seven with no J VS publication. During the last 3 years, there were 7 programs with no publications and 19 programs with no J VS publications. The number of abdominal arterial-endo citations peaked in 2002 and 2003 while the number of abdominal arterial-open, lower extremity-open, basic science, and carotid-open citations continue to fall. Imaging citations peaked in 2003-2005, and the number of carotid-endo, vein-endo, and thoracic aortic-endo citations continue to climb.

Conclusions: The decrease in the number of citations/program/year raises concern about the level academic activity in vascular surgery. Overall, the annual distribution of the topic of these citations represents a continued shift from open to endovascular cases and decreasing basic science citations.

Author Disclosures: E. Ascher: Nothing to disclose; **K. Gopal**: Nothing to disclose; **A. Hingorani**: Nothing to disclose; **T. Jacob**: Nothing to disclose; **D. Jung**: Nothing to disclose; **N. Marks**: Nothing to disclose; **A. Shiferson**: Nothing to disclose.

PS110.

Analysis of Computerized Tomographic Angiography in the Evaluation of Carotid Artery Stenosis in Patients With Equivocal Duplex Findings

Kelly Lesperance, Niten Singh, Beverly Ciesinski, Joseph Augustyn, John Dunsmoor, Reagan Quan. Madigan Army Medical Center, Tacomca, WA

Objectives: The reliability of computerized tomographic angiography (CTA) in defining CAS remains debated. The purpose of this study is to examine the accuracy of CTA evaluation of CAS when compared to DUS and DSA.

Methods: A retrospective review of was performed on all patients who underwent carotid DUS, CTA and DSA between November 2007 and October 2009. All patients had DUS in our ICAVL certified laboratory with equivocal findings that required additional imaging. In determining the degree of stenosis, the Strandness criteria was used for DUS and NASCET criteria for DSA. The degree of stenosis in CTA was determined using axial and sagital/coronal source reconstructions, if available. Pearson correlation coefficient was used to determine the degree of correlation between tests.

Results: CAS was identified in 28 patients (42.3% female, mean age 67.1 years, 32% symptomatic) and in 40 vessels. In 19 of 40 (47.5%), the degree of stenosis correlated in all three imaging modalities. In 27 of 40 (67.5%, $r = 0.62$, $p < 0.01$), DUS correlated with DSA. In 24 of 40 (60.0%, $r = 0.58$, $p < 0.01$), CTA correlated with DSA. In 21 vessels (52.5%, $r = 0.53$, $p < 0.01$), DUS correlated to CTA only and in five vessels, there was no correlation among any three modalities. When CTA did not correlate with DSA, the degree of stenosis was overestimated in 72% of the vessels.

Conclusions: In CAS, DUS remains the first line non-invasive imaging modality. CTA is more likely to overestimate the percent stenosis and miss short, focal stenoses compared to DSA. Substituting CTA for DSA in vessels with equivocal findings on DUS may be inaccurate.

Author Disclosures: J. Augustyn: Nothing to disclose; **B. Ciesinski**: Nothing to disclose; **J. Dunsmoor**: Nothing to disclose; **K. Lesperance**: Nothing to disclose; **R. Quan**: Nothing to disclose; **N. Singh**: Nothing to disclose.

PS112.

Duplex Brachial Vein Velocities Can Predict Central Stenosis

David C. Cassada, Richard B. Cook, Oscar Grandas, Michael B. Freeman, Scott L. Stevens, Mitchell H. Goldman. Surgery, University of Tennessee Medical Center, Knoxville, TN

Objectives: Axillo-subclavian vein thrombosis (AVT) leads to arm swelling, and DUPLEX accuracy is limited by the clavicle. Post-hyperemic brachial vein velocities obtained from DUPLEX may reflect more central obstructive lesions that are not obvious without hyperemia.

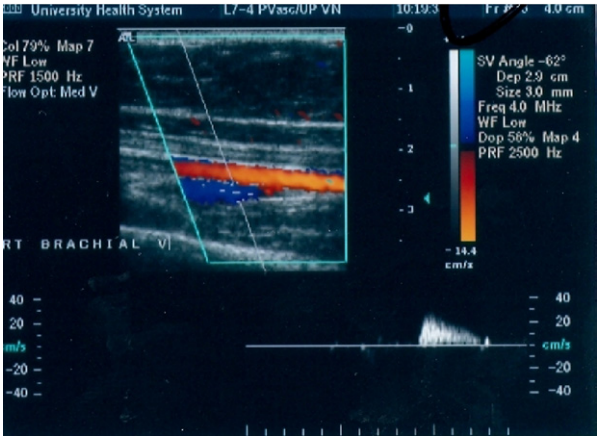
Methods: Patients (11) with prior known AVT were seen for arm swelling. Five of the 11 patients had undergone prior surgery or instrumentation of the subclavian vein. DUPLEX vein imaging of the arm was performed to detect acute or chronic thrombus or absence of flow anatomically. After usual DUPLEX, bilateral arms were compared in each for resting and post-hyperemic velocities using mean ± SD, and t-test to determine significance ($p < 0.05$). All underwent venography to confirm central vein disease and to treat stenoses related to AVT.

Results: Significant diminution in peak velocities occurred in patients with subclavian vein stenoses; resting velocities only tended to decrease in patients with central venous stenoses. Traditional DUPLEX was positive in only two patients, whereby chronic axillary thrombi were seen.

Conclusions: These findings suggest that dynamic evaluation of brachial vein flow velocities with DUPLEX can be useful in surgical planning for arm swelling. Compression to create hyperemia seems to augment DUPLEX sensitivity. Prior AVT should prompt evaluation of post-hyperemic flow velocity.

Velocities measured at brachial vein

	Resting Asymptomatic	*Resting Symptomatic*	*Hyperemia Asymptomatic*	*Hyperemia Symptomatic*
cm/s	38.4	20.9	74.3	40.4
S. D.	18.8	21.7	34.0	34.1
p value		.08		.05



Author Disclosures: D. C. Cassada: Nothing to disclose; **R. B. Cook**: Nothing to disclose; **M. B. Freeman**: Nothing to disclose; **M. H. Goldman**: Nothing to disclose; **O. Grandas**: Nothing to disclose; **S. L. Stevens**: Nothing to disclose.

PS114.

Magnetic Resonance Imaging of Abdominal Aortic Aneurysms (AAA) Using Ultrasmall Superparamagnetic Particles of Iron Oxide (USPIO)

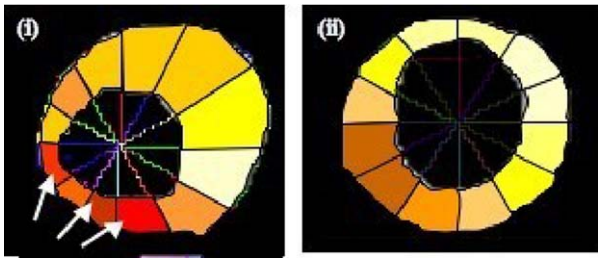
Jennifer M. Richards[1], Scott I. Semple[1], Calum Gray[1], Graham McKillop[2], Roderick T. Chalmers[2], Olivier J. Garden[1], David E. Newby[1]. [1]Centre of Cardiovascular Science, University of Edinburgh, Edinburgh, United Kingdom; [2]NHS Lothian, Edinburgh, United Kingdom

Objectives: Accurate assessment of risk of rupture of AAA is needed to guide preventative intervention. Existing methods reliant upon aneurysm diameter do not take into account the biology of the disease. The aim of this study was to investigate the use of USPIO to identify inflammatory hotspots in the wall of AAA.

Methods: Patients (N = 9) with AAA (>5.5cm in diameter) were imaged in a 1.5T MRI scanner before and 48 h after administration of 2.6mg/kg USPIO (Sinerem, Guerbet). T2 and T2∗-weighted gradient-echo sequences (TE 4.8 and 14.3ms) were acquired. A region of interest representing the aortic wall was delineated and radially subdivided into 12 segments (Analyze, Mayo Clinic). The mean % change in T2∗ value was calculated for each segment. At the time of surgery a sample of the anterior aortic sac was fixed in formalin and stained for CD68 (macrophage marker) and Iron (Prussian Blue).

Results: Following USPIO administration, differential changes in T2∗ value were seen within the AAA. Segments with a greater change in T2∗ value were clustered together and may represent inflammatory hotspots at risk of rupture (fig i). Other AAA showed lower, more uniform USPIO uptake which may reflect stability (fig ii). Histological analysis of AAA samples demonstrated macrophages co-localising with iron particles.

Conclusions: This pilot work demonstrates the potential of USPIO contrast agents to detect inflammatory hotspots during the assessment of AAA.



Change in T2∗ value following administration of Sinerem. Fig (i) Dark colours show a hotspot of inflammation (arrows) in the posterior wall of the aneurysm which may indicate a potential rupture site. Fig (ii): In a second patient no hotspot is seen suggesting that this aneurysm may be stable with a lower risk of rupture

Author Disclosures: R. T. Chalmers: Nothing to disclose; **O. J. Garden**: Nothing to disclose; **C. Gray**: Nothing to disclose; **G. McKillop**: Nothing to disclose; **D. E. Newby**: Nothing to disclose; **J. M. Richards**: Nothing to disclose; **S. I. Semple**: Nothing to disclose.

PS116.

Electronic Ordering of Vascular Laboratory Studies for DVT in Symptomatic Patients Is Less Specific and Increases the Number of Bilateral Scans

Gurjeet Kaleka, John Blebea, John Wang. Division of Vascular Surgery, Case Western Reserve University, Cleveland, OH

Objectives: Guidelines for patients with unilateral leg symptoms suggest a complete venous ultrasound on the symptomatic side and a limited contralateral scan for the diagnosis of DVT. We examined if electronic ordering affected compliance with these guidelines.